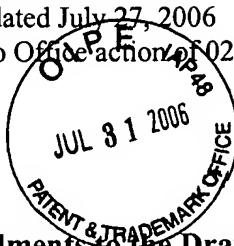


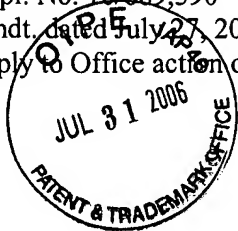
Appl. No. 10/689,390  
Amdt. dated July 27, 2006  
Reply to Office action of 02 May 2006



**Amendments to the Drawings:**

Amendments to the drawings include the addition of the legend "PRIOR ART" to FIG. 1, the addition of a counter to FIG. 3, the addition of a new sheet of drawings carrying FIGs. 17A and 17B, and the renumbering of all the sheets to reflect that there are now nine sheets of drawings and not eight.

Attachment: Replacement sheets 1/9 – 8/9  
Annotated sheets 1/9 – 8/9  
New sheet 9/9



### REMARKS/ARGUMENTS

In paragraph 4 of the Office action, the drawings have been objected to under 37 CFR 1.83(a) as failing to show every feature of the invention specified in the claims. The examiner has suggested "adding a flow chart of the process of shifting the data and storing it based on the count" with respect to the subject matter of claims 3-6, 10-13, 17-20, 24-27, and 31-34. In response, new FIGs. 17A and 17B have been added. FIGs. 17A and 17B follow the description of the process as set forth in paragraph [0066] of the specification as filed. No new matter has been added. Paragraph [0066] has been amended to refer to new FIG.s 17A and 17B. In view of the foregoing, it is respectfully submitted that the data shifting and storing recited in the claims is now fully illustrated in the figures.

The examiner has also suggested "adding a figure for a processing element containing a counter" with respect to the subject matter of claims 2, 9, 16, 23, and 30. Instead of adding an additional figure, FIG. 3 has been amended to add a counter.

In response to paragraph 5 of the Office action, FIG. 1 has been amended to add the legend "PRIOR ART" as suggested by the examiner.

In paragraph 10 of the Office action, claim 36 is rejected under 35 U.S.C. § 101 as being directed to nonstatutory subject matter. Claim 36 has been amended to recite "computer-readable" as suggested by the examiner. It is believed that with that amendment, claim 36 is now in compliance with 35 U.S.C. § 101.

In paragraph 12 of the Office action, claims 2, 9, 16, 23, and 30 were objected to as failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The language of the original claims was intended to present alternatives without using "or." However, due to the confusion caused by the original language, each of these claims has been amended to replace the phrase "one of" with -- either -- and to replace "and" with -- or --. Thus, with respect to claim 2, the initial counts are either loaded or calculated locally.

In paragraph 15 of the Office action, claims 1-6, 8-13, 15-20, 22-27, 29-34, and 36 are rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,081,700 to

Crozier ("Crozier") in view of U.S. Patent No. 6,338,129 to Pechanek et al. ("Pechanek"). Applicant respectfully disagrees that the examiner's interpretation of Crozier.

Applicant disagrees with the examiner's statement that "Crozier disclosed a method of rotating data in a plurality of processing elements." Crozier does not disclose a plurality of processing elements. Rather, Crozier discloses a barrel shifter 28 which processes information concerning a character, one slice at a time. See column 3, lines 3-6.

Independent claim 1 has been amended to recite that the plurality of shifting operations is performed by a plurality of processing elements connected in an array. Furthermore, the plurality of storing operations is performed by the plurality of processing elements. Thus, the plurality of processing elements performs both the shifting and the storing. It is clear from Crozier that the shifting and storing are provided by two different components. In Crozier, information is stored in RAMs 34 and shifted, one slice at a time, by barrel shifter 28. Thus, Crozier fails to teach more than simply the plurality of storing information operations being responsive to the processing element's position.

Pechanek does not provide the missing teachings. The portion of Pechanek relied upon by the examiner is the description of the related art as well as Fig. 1A. However, this portion of Pechanek shows nothing more than the ability to move data within an array of elements. Furthermore, it is not clear how the teachings of this reference can be combined with the teachings of Crozier. Pechanek discloses moving data through an array of elements whereas Crozier is directed to the processing of data one slice at a time through a barrel shifter. The two references are so disparate as to make the combination of the teachings quite unlikely. It is believed when the effects of hindsight are eliminated from the analysis, and the primary reference (Crozier) is viewed for what it actually teaches, it is apparent that the teachings of the secondary reference (Pechanek) do not provide either the missing subject matter or a suggestion to combine. For those reasons, it is respectfully requested that the obviousness rejection of claim 1 be withdrawn.

Independent claims 8 and 22 have not been amended. However, independent claims 8 and 22, as originally submitted, make it clear that the various steps are being performed by a

plurality of processing elements. Thus, the arguments made above with respect to claim 1 are believed to be equally applicable to claims 8 and 22.

Independent claims 15, 29, and 36 have been amended in a manner similar to the amendments made to claim 1. Accordingly, the same arguments set forth hereinabove with respect to claim 1 are believed to be equally applicable to claims 15, 29, and 36.

Applicant chooses at this time not to submit arguments in favor of the patentability of the dependent claims. It is applicant's position that because the independent claims are now in condition for allowance, all of the dependent claims are also in condition for allowance. Applicant reserves the right to present, at a later date, arguments in favor of the patentability of the dependent claims.

Applicant has made a diligent effort to place the instant application in condition for allowance. Accordingly, a Notice of Allowance for claims 1-36 is respectfully requested. If the examiner is of the opinion that the instant application is in condition for disposition other than through allowance, the examiner is respectfully requested to contact applicant's attorney.

Respectfully submitted,



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Attorneys for Applicant



Annotated Sheet 1/8/9

Prior Art

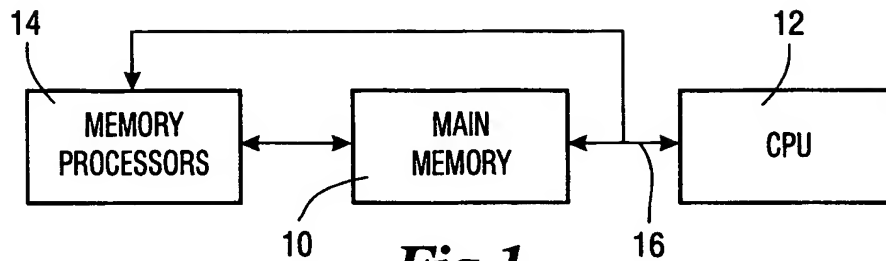


Fig. 1

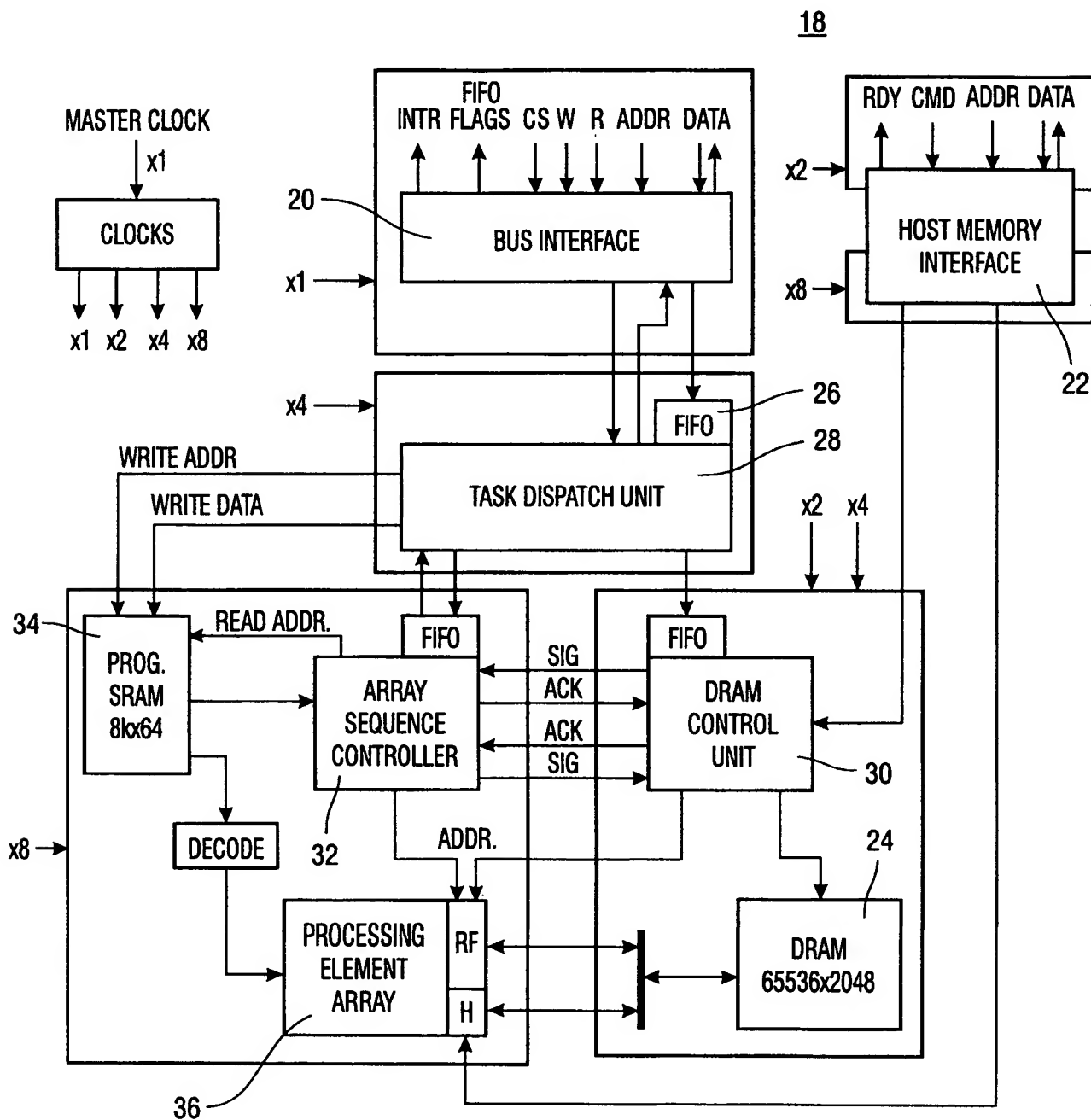
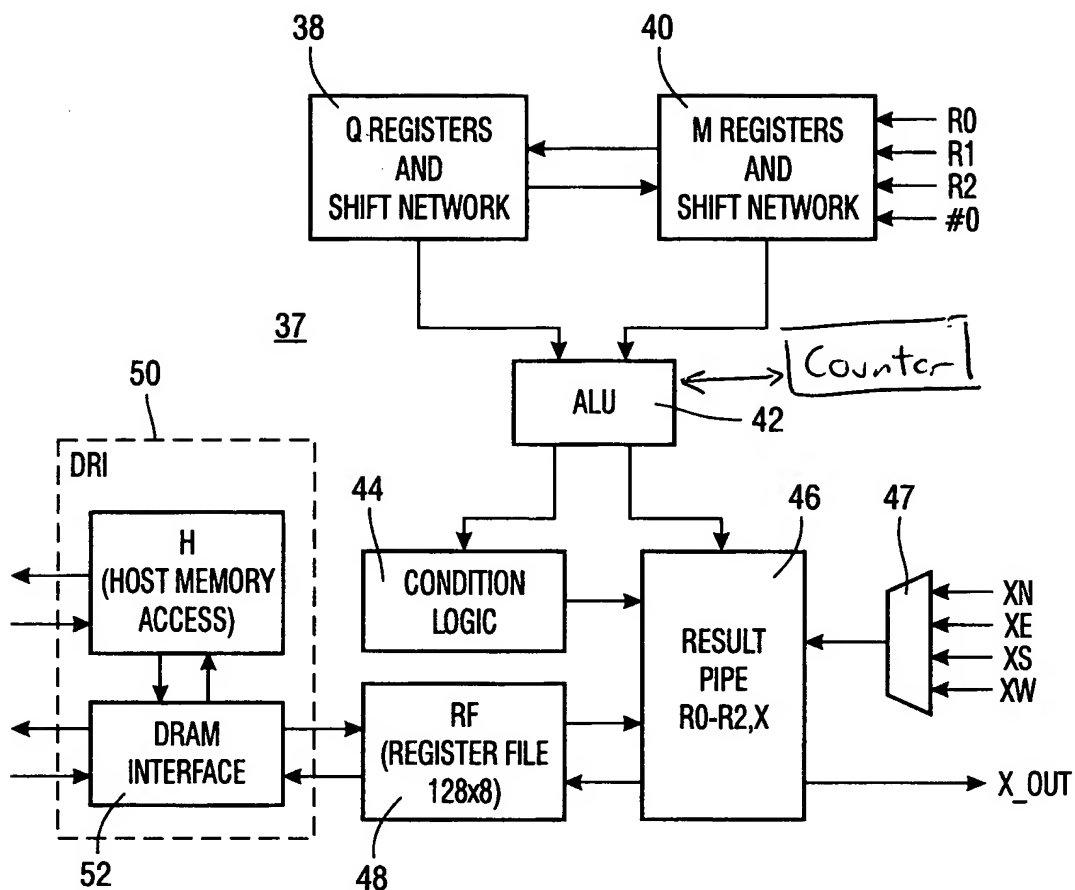
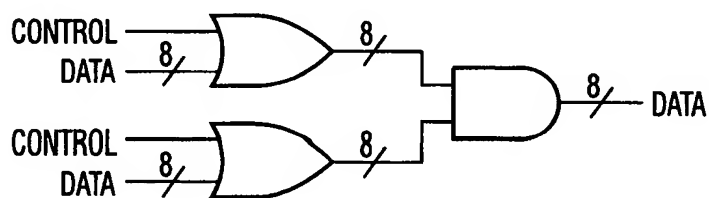


Fig. 2

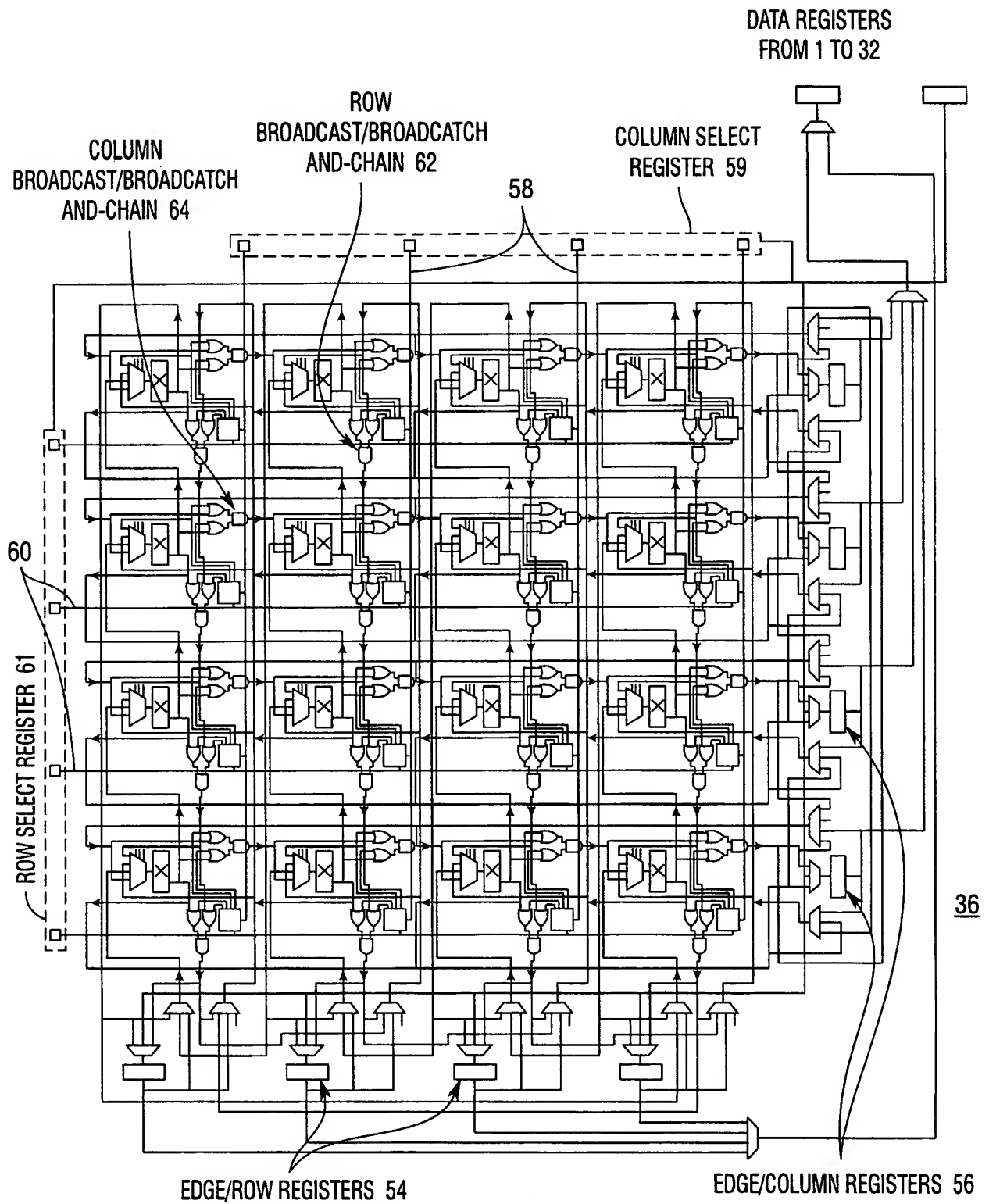


**Fig.3**



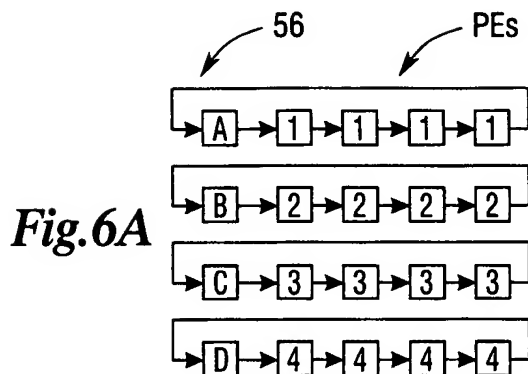
**Fig.4**

Annotated Sheet 3/89

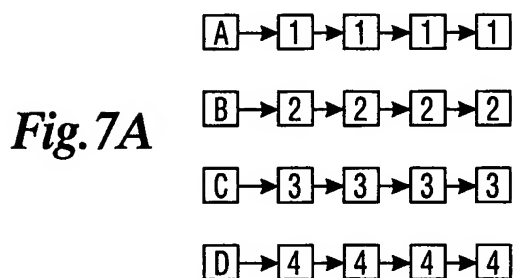
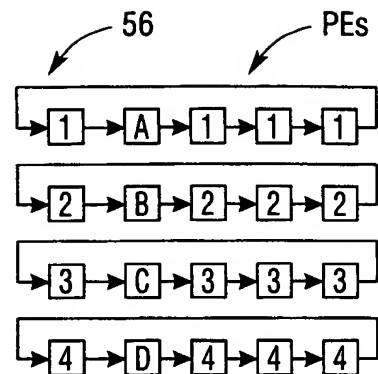


**Fig.5**

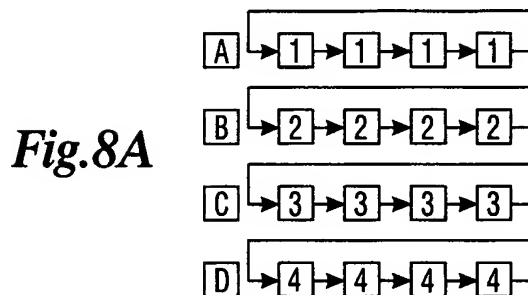
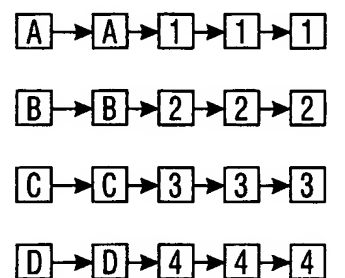
Annotated Sheet  
4/8 9



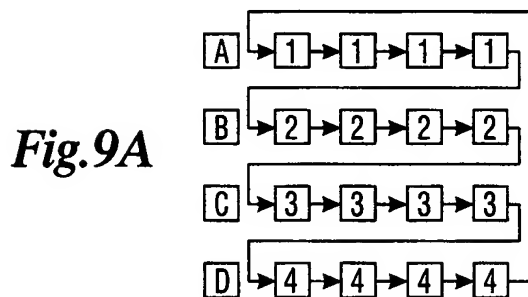
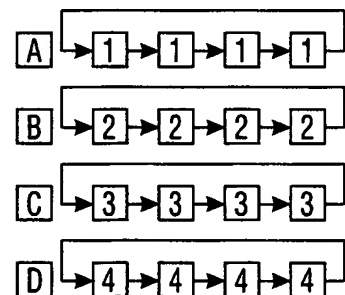
Edge Shift



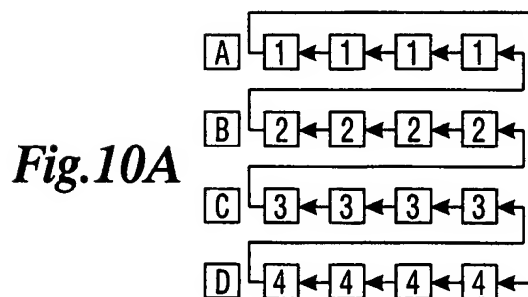
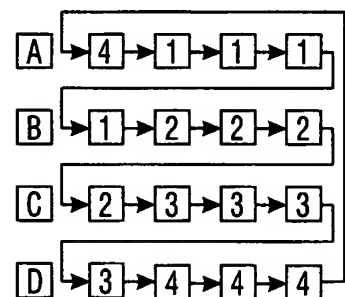
Planar Shift



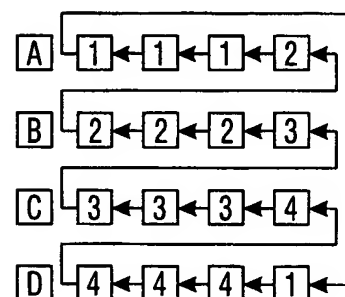
Wrap Shift



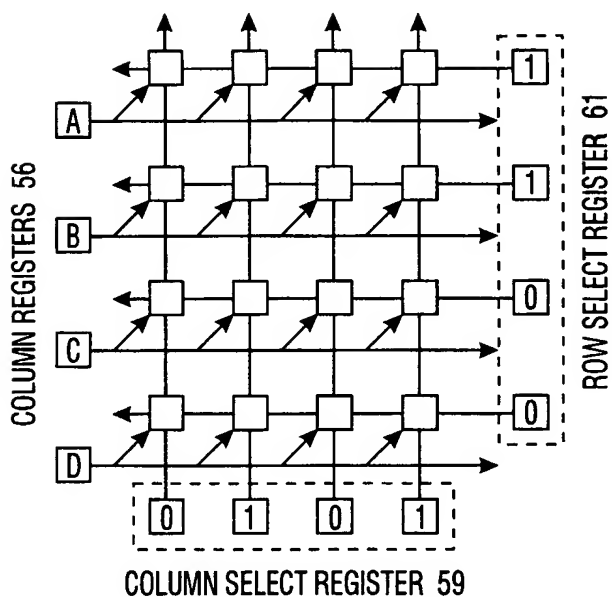
Vector Shift  
 $x \leq xw, \text{vector}$



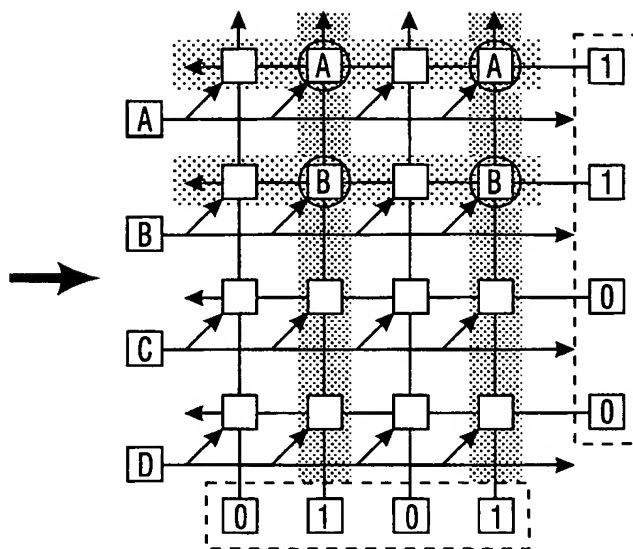
Vector Shift  
 $x \leq xe, \text{vector}$



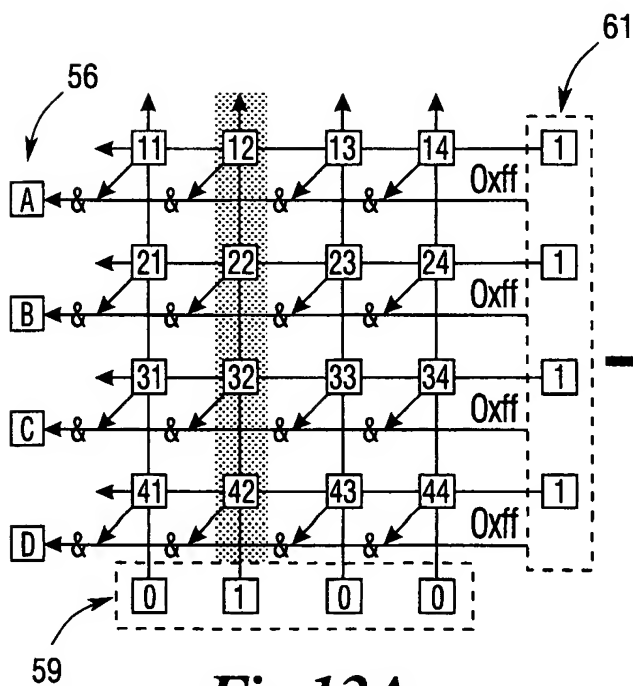




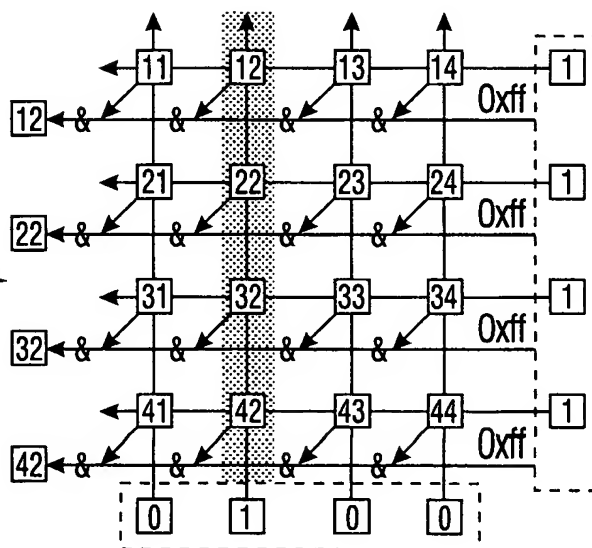
**Fig. 11A**



**Fig. 11B**



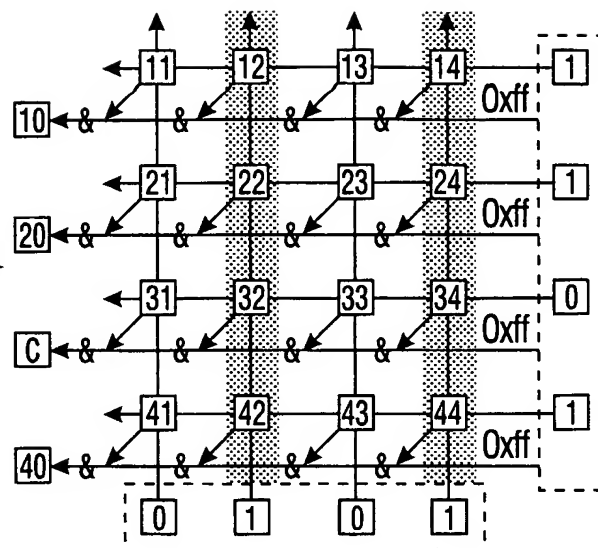
**Fig. 12A**



**Fig. 12B**



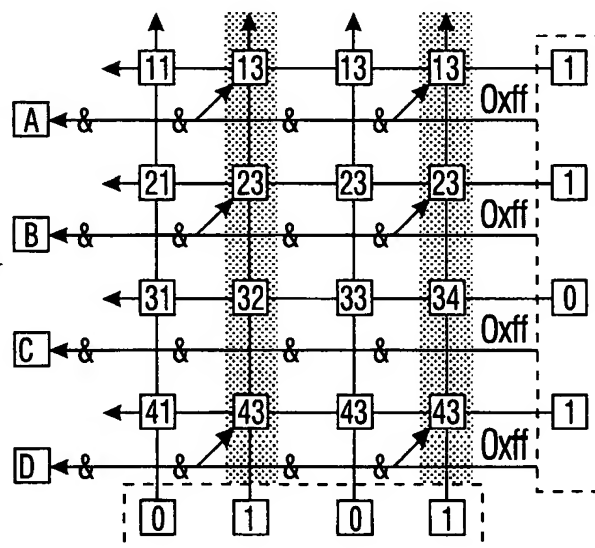
**Fig.13A**



**Fig.13B**



**Fig.14A**



**Fig.14B**

Annotated Sheet 7/8 9

	C7	C6	C5	C4	C3	C2	C1	C0
r0	A0	A1	A2	A3	A4	A5	A6	A7
r1	B0							B7
r2	C0							C7
r3	D0							D7
r4	E0							E7
r5	F0							F7
r6	G0							G7
r7	H0	H1	H2	H3	H4	H5	H6	H7

**Fig.15A**

A0	A1	A2	A3	A4	A5	A6	A7										
B7	B0						B6	B7									
C6	C7	C0					C5		C7								
D5		D7	D0				D4				D7						
E4			E7	E0			E3					E7					
F3				F7	F0		F2						F7				
G2					G7	G0	G1								G7		
H1	H2	H3	H4	H5	H6	H7	H0	H1	H2	H3	H4	H5	H6	H7			

**Fig.15B**

B7						A7	B7	C7	D7	E7	F7	G7	H7	
	C6					A6	B6	C6					H6	
		D5				A5		C5	D5				H5	
			E4			A4			D4	E4			H4	
				F3		A3				E3	F3		H3	
					G2	A2					F2	G2	H2	
						H1	A1					G1	H1	
							A0	B0	C0	D0	E0	F0	G0	H0

**Fig.15D**

B7	C7	D7	E7	F7	G7	H7	A7
C6					H6	A6	B6
D5				H5	A5		C5
E4			H4	A4			D4
F3		H3	A3				E3
G2	H2	A2					F2
H1	A1						G1
A0	B0	C0	D0	E0	F0	G0	H0
						H7	
					H6		
				H5			
			H4				
		H3					
	H2						
H1							

**Fig.15C**

A0	A1	A2	A3	A4	A5	A6	A7
B0							B7
C0							C7
D0							D7
E0							E7
F0							F7
G0							G7
H0	H1	H2	H3	H4	H5	H6	H7

**Fig.16A**

104															
A0	A1	A2	A3	A4	A5	A6	A7	A0	A1	A2					
	B0		B2					B7	B0	B1					
		C0	C1						C7	C0					
			D0							D7					
			E7	E0					E6	E7					
			F6	F7	F0				F5		F7				
			G5		G7	G0			G4		G7				
			H4	H5	H6	H7	H0	H1	H2	H3	H4	H5	H6	H7	
												102			

**Fig.16B**

E7				A7	B7	C7	D7	E7	F7	G7	H7
F6				A6				E6	F6		H6
G5				A5				F5	G5		H5
H4				A4				G4	H4		
				A3							H3
				A2	B2					H2	A2
				A1	B1	C1				H1	B1
				A0	B0	C0	D0	E0	F0	G0	H0
											C0

**Fig.16D**

										A2
										A1
										A0
E7	F7	G7	H7	A7	B7	C7	D7			
F6		H6	A6					E6		
G5	H5	A5						F5		
H4	A4							G4		
A3								H3		
B2								H2	A2	
C1								H1	A1	B1
D0	E0	F0	G0	H0	A0	B0	C0			
				H7						
				H6						
				H5						
				H4						

**Fig.16C**